

**IN THE DRAWINGS**

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### **REMARKS**

Applicants respectfully request reconsideration of the rejection of the claims in view of the remarks set forth below. Claims 1-5 remain in the application. Claims 1 and 5 have been amended. Claims 2-4 remain unchanged.

#### **Claim Objections**

Claims 1 and 5 are objected to because of formalities. Claim 1 is objected to for use of acronyms and clarity. Claim 5 is objected to for failing to clearly define the invention. In response to the examiner's remarks, the applicants have amended the claims as suggested by the examiner in order to address the objections.

#### **35 U.S.C. §101**

Claims 1-4 stand rejected under 35 U.S.C. § 101. In particular, the examiner noted that claim 1 discloses a process that manipulates only number, abstract concepts or ideas or representing any of the foregoing. In response to the examiner's remarks, the applicants have amended the claims as suggested by the examiner in order to overcome the rejection.

#### **35 U.S.C. §103**

Claims 1-5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hiroaki (EP 065804), in view of Hanik et al. (US Pat No 6,965,736). The applicants respectfully traverse the rejection and propose that, for at least the reasons discussed below, amended claims 1-5 are patentably distinguishable over the teachings of the suggested combination of references and submit the following arguments for consideration by the examiner.

Amended independent claim 1 recites, inter alia, " A method for selecting a transmission channel from several transmission channels of a receiver of

Orthogonal Frequency Division Multiplexing (OFDM) radio signals with antenna diversity, with a view to favouring the transmission channel delivering a signal with the lowest binary error rate, wherein the method comprises the estimation of the binary error rate for each transmission channel by feeding a neural network with data representative of the frequency response of the transmission channel and selecting an antenna based on the output of the neural network." Applicants submit that the cited references, even if combined in the manner suggested, failed to disclose or suggest each and every limitation of the above amended claim 1.

In the office action, the examiner acknowledges that Hiroaki fails to show specifically estimating the binary error rate by feeding the frequency response of the transmission channel into a neural network. Hanik is cited to provide the missing feature. However, the examiner further appears to acknowledge that Hanik is interpreted to disclose the estimation of the binary error rate for each transmission channel by feeding a neural network with data representative of the frequency response of the transmission channel using the received signal characteristic of amplitude into the neural network for estimating the signal quality as defined by the bit error rate (BER). The Applicants respectfully disagree with this interpretation of Hanik. As acknowledged by the Examiner, in Hanik, the amplitude of the signal is input into a neural network and classified according to bit error rate. However, an amplitude of a signal as described in Hanik cannot be interpreted as the same as a frequency response of the transmission channel. The histogram of figure 2 in Hanik shows the relative frequency of a specific signal amplitude which are assigned to the BER equal to  $10^{-11}$ . The graph therefore shows a relation to the amplitude distribution for a given BER. Further, as clearly stated in Hanik, the neural network of figure 3 is fed with the amplitude data associated to the histogram of figure 2 (see column 6 lines 9-16).

In contrast, in the present application, the frequency response of the transmission channel corresponds to a model of channel based on the transmitted frequency. The neural network in the present application is fed with the frequency response of the transmission channel. Therefore, Hanik does not teach or suggest the use of data representative of the frequency response of the transmission channel feeding a neural network. Thus, the features and effect of the method

disclosed in Hanik is quite different from the features and effects of the present invention.

Further, Hanik relates to the operation of an optical transmission system (See abstract of Hanik). Hanik appears to be directed to providing a method for monitoring the transmission quality of an optical transmission system (see column 2 lines 32-38, column 6 lines 28-39). In contrast, the present application relates to the radio communications and is directed at a radio system that uses OFDM and antenna diversity. The field of radio communications and antenna diversity is quite far from the optical field and those skilled in the art would not have considered the teaching of Hanik in the radio field. As a result, nothing in Hanik would be used to teach the use of neural networks for an antenna selection in a radio communications receiver.

In view of the above, applicants submit that none of the cited references, either singly or in combination, teaches or suggests each and every limitation of amended claim 1. As a result of the preceding arguments, it is respectfully proposed that the rejection for obviousness under 35 U.S.C. § 103(a) is overcome and notice to that effect is earnestly solicited.

Dependent claims 2-4, being dependent on and further limiting amended independent claim 1, should be allowable for that reason, as well as for the additional recitations that they contain. Therefore, it is respectfully proposed that claims 2-4 now stand in condition for allowance and notice to that effect is earnestly solicited.

Amended independent claim 5 includes elements similar to the elements of amended independent claim 1 and should therefore be allowable for the same reasons discussed above as well as for the additional recitations contained therein. Therefore, it is respectfully proposed that the rejection of independent claim 5 under 35 U.S.C. § 103(a) is overcome in accordance with the above remarks and notice to that effect is earnestly solicited.

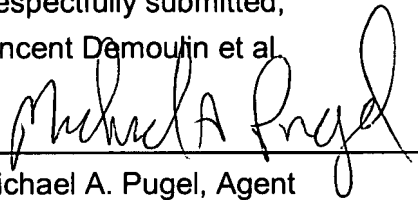
### **Conclusion**

Having fully addressed the Examiner's rejections it is believed that, in view of the preceding remarks, this application stands in condition for allowance.

Accordingly then, reconsideration and allowance are respectfully solicited. If, however, the Examiner is of the opinion that such action cannot be taken, the Examiner is invited to contact the applicants' agent at (317) 587-4027, so that a mutually convenient date and time for a telephonic interview may be scheduled.

No additional fee is believed due in regard to the present amendment. However, if an additional fee is due, please charge the fee to Deposit Account 07-0832.

Respectfully submitted,  
Vincent Demoulin et al.

A handwritten signature in black ink, appearing to read "Michael A. Pugel", written over a horizontal line.

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September 6, 2007



CERTIFICATE OF MAILING

I hereby certify that this amendment is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on:

Sept 6, 2007  
Date

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